

ACCESSION NR: AP4010070

8/0129/64/000/001/0024/0027

AUTHORS: Gorbach. V.G.; Maly*shev, K.A.; Gc3s, A.V.; Ustyugov, P.A.

TITLE: Effect of high temperature nonrecrystallizing work hardening on the mechanical properties of precipitation hardened

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 1, 1964, 24-27.

TOPIC TAGS: precipitation hardened steel, austenitic steel, work hardening, aging, high temperature work hardening, vanadium containing steel, brittleness, recrystallization, strength, impact strength

ABSTRACT: A study of austenitic steels (containing Cr-Ni-Mn, Cr-Ni-Mn-V and Cr-Mn-V) showed that high temperature work hardening affected their properties favorably after aging, increasing strength and impact strength. The high temperature work hardening decreased the transcrystalline brittleness developed by precipitation hardening. The partial growth of recrystallization by the high temperature work hardening does not eliminate the possibility of getting

ACCESSION NR: AP4010070

higher mechanical properties (in comparison to properties of steels not subject to high temperature work hardening) by subsequent precipitation hardening. Austenitic steel containing 1.5% vanadium, when subjected to a combination of high temperature work hardening and aging has high mechanical properties even by partial recrystallization during the high temperature deformation process. Orig. art. has: 2 tables and 4 figures.

ASSOCIATION: None

SUBMITTED: 00

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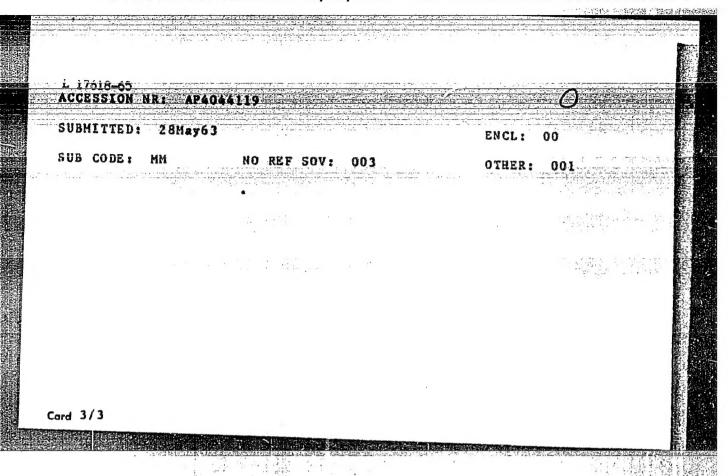
L 17618-65 EWT(m)/EWA(d)/EWP(t)/EMP(b) MJW/JD/WB/JXT(CZ) ACCESSION NR: AP4044119 5/0148/64/000/008/0123/0128 AUTHOR: Mints, R. I.; Gorbach, V. G.; Eysmondt, T. D. TITLE: Kinetics of martensite formation in chromium-nickel and chromium-manganese steels under the effect of deformation SOURCE: IVUZ. Chernaya metallurgiya, no. 8, 1964, 123-128 TOPIC TAGS: chromium nickel austenitic steel, 44Khl0g7 steel cavitation resistance, 70Kh7N8 steel cavitation resistance, chromium manganese austenitic steel, deformation induced marrensitic transformation, steel cavitation resistance ABSTRACT: The study of martensitic transformation in 70Kh7N8 and 44Kh10g7 austenitic steels has shown that while both steel types have the same $M_{\rm S}$ temperature, -20 to -60C, and form the same amount of martensite on cooling, they differ sharply in the intensity and volume of martensitic transformation under the effect of deformation. The intensity of martensite formation and the quantity of the martensite is much higher and the transformation temperature range is

L 17618-65 ACCESSION NR: AP4044119

wider in chromium-manganese steel than in chromium-nickel steel since the Md point of the formula, i.e., 180-200C, is higher than that of the latter, i.e., 140C. With an increasing reduction and a decreasing deformation temperature, the quantity of martensite found in chromium-manganese steel increases much more rapidly than in chromium-mickel steel. Rolled at 200C both steels have the same hardness, but the hardness of chromium-manganese steel increases more rapidly with a decreasing temperature of deformation than the hardness of chromium-nickel steel. This can be explained by lower stability of chromium-manganese austenite in the process of plastic deformation. Index conditions of cavitation when the plastic deformation occurs in the process of plastic deformation occurs in the process of plastic deformation occurs in the plastic deformation

ASSOCIATION: none

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512 1	L 8857-66 ENT(m)/ENA(d)/T/ENP(t)/ENP(s)/ENP(b)/ENA(h)/ENA(c) JD ACC NR: AP5026744 SOURCE CODE: UR/0286/65/000/017/0020/0020	
	INVENTOR: Malyshev, K. A.; Borodina, N. A.; Gorbach, V. G. ORG: nort 79.55 TITLE: Method of heat treatment of austenitic alloys. Class 18, No. 174203 [Announced by the Ural Branch of the Institute of Metal Physics, AN SSSR (Ural'skiy filial instituta fiziki metalloy AN SSSR)]	
	SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 17, 1965, 20	
	TOPIC TAGS: available atual, mutalogia, alloy, matal heat treatment, solid muclimical property. ABSTRACT: This Author Certificate introduces a method of heat treatment of austenitic alloys which combines direct gamma to alpha and reverse alpha to gamma transformations and produces strain-hardened austenite. Improved mechanical properties are obtained by subsequent aging of strain-hardened austenite while preserving the austenitic	
1.	SUB CODE: 13, // SUBM DATE: 01Feb64/ ATD PRESS: 4/52	
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ACCESSION NR: APHO17355

8/0126/64/017/002/0229/0233

AUTHOR: Gorbach, V. G.; Maly shev, K. A.

TITIE: Strengthening high-carbon austenite alloys by phase-transformation-induced strain-hardening

SOURCE: Fizika metallov i metallovedeniye, v. 17, no. 2, 1964, 229-233

TOPIC TAGS: austenitic alloy, high carbon steel, strengthening, strain hardening, phase transformation, iron alloy, steel structure

ABSTRACT: Strain-hardening occurring during a 7000-7 transformation was examined as a way of strengthening alloys of Fe with Ni (0.1—21.75%), Mn(0.45—6.4%0, Cr(0.54—14.71%), Si(0.28—2.21%), and C(0.35—0.80%) in a series of tests at -20 to -160 C. A high degree of strengthening and preservation of the austenitic structure depend on the rate of the temperature rise in the alloy during the transformation. No strengthening occurs below a definite temperature-rise rate, which is specified for each particular alloy. Prolonged holding in the austenitic state at optimum temperatures (700-730 C) in an attempt to dissolve the carbides liberated by martensite during annealing did not succeed. It is concluded that a high carbon content, in addition to its marked strengthening effect, may permit reduced use of scarce metals (Ni) and make the Mapoint less dependent on the chemical composition. Orig.

ACCESSION MR: AP4017355			
ASSOCIATION: Institut fiziki metallo	ov AN SSSR (Institute of M	etallurgical Physi	.cs
SUBMITTED: 21May63	· DATE ACQ: 18Mar64	ENCL: 00	
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ACCESSION NR: AP4039598

5/0126/64/017/005/0714/0718

AUTHOR: Zaytsev, V. I.; Gorbach, V. G.

TITLE: Heat-induced change in the structure and strength characteristics of an alloy deformed in martensitic state

SOURCE: Fizika metallov i metallovedeniye, v. 17, no. 5, 1964, 714-718

TOPIC TAGS: iron nickel alloy, alloy transformation, martensitic transformation, reversed transformation, transformation induced strengthening, work hardened mertensite, transformed austenite, austenite property

ABSTRACT: The structure and properties of a low-carbon iron-nickel alloy (0.04% C, 0.38% Mn, 0.33% Si, 28.33% Mi) were investigated after deformation in the martensitic state and subsequent transformation of martensite to austenite. Alloy specimens containing 90% martensite and 10% austenite were rolled at liquid nitrogen temperature or at room temperature. Deformation with a reduction of 40%

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at -196C transformed all the austenite to martensite and raised the yield strength by 20-25% and the microhardness from 210 kg/mm² to 265 kg/mm². No further increase in the yield strength was obtained after reductions up to 80%. On heating, the deformed martensite becase Fig. 1 of the Enclosure). However, the austenite from deformed martensite softens more rapidly than that transformed from undeformed martensite specimens; at temperatures above 600G, the yield strength caused by recrystallization, as analysis of the x-ray diffraction the alloy in the martensitic state was rolled at 150C with a reduction of 25%. This treatment increased the microhardness of austenite by previous experiments. Orig. art. has: 5 figures.

ASSOCIATION: Institut meorganicheskoy i fizicheskoy khimii AN KirgSSR (Institute of Inorganic and Physical Chemistry, AN KirgSSR); Institut fiziki metallov AN SSSR (Insitute of Physics of Metals, AN SSSR)

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- :	martensitic transformation	· Programme States	turing tyres
er er Eis	cika metallov i metalloveđeniye, v. 20,	no. 1, 1965, 114-1	119
ibic Arcei	x ray diffraction analysis, metallogr transformation, iron nickel alloy	aphy, austenite tra	ansformation,
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ealed aust	enite grains is characterized by a small prientation of which varies very little than the sustainable tensity increases. After the prevention of an fine fragments with the content of the sustainable tensity increases.	As martensite b	riented and the
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APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000516020016-0"

L 8840-66 EWT(m)/EWA(d)/T/EWP(t)/EWP(k)/EWP(s)/EWP(b)/EWA(c)IJP(c) JD/HW/MJW(CL ACC NR: AP5027149 UR/0126/65/020/004/0608/0613* AUTHOR: Zaytsev, V. I.; Gorbach, V. G. 44.55 ORG: Institute of Inorganic and Physical Chemistry, AN KirgSSR (Institut neorganicheskoy i fizicheskoy khimii AN KirgSSR); Institute for the Physics of Metals, AN SSSR (Institut fiziki metallov AN SSSR) TITLE: Effect of initial structure of martensite on strengthening of austenite by phase cold working SOURCE: Fizika metallov i metallovedeniye, v.20, no.4, 1965, 608-613 TOPIC TAGS: martensite steel, austenite steel, work hardening, phase transition, COLD WORKING ABSTRACT: The article considers the effect of the initial structure of martensite on the austenitic structure after martensite transition from the alpha to the gamma phase. The investigation was carried out on an alloy of iron and nickel containing 28% nickel and 0.04% carbon, in which the forward and reverse transitions from the gamma phase to the alpha phase and back take place by the martensite mechanism. On cooling in liquid nitrogen, 95-90% martensite can be obtained in the alloy. Results of investigations of the fine structure UDO: 539.4.015:669.15'24

L 8840-66

ACC NR: AP5027149

of the alpha and gamma phases are shown graphically. From the experimental results the following conclusions are drawn. In the transition from the alpha to the gamma phase, austenite inherits the block structure, high density of dislocations which high degree of disorientation of the blocks and fragments over the grains, which are observed in the structure of the initial martensite. There is a high degree of disorientation of the blocks and fragments over the grains in the alpha and gamma states. There is a low temperature stability of the defects of the fine structure and, as a result, a shift of the austenite recrystallization temperature toward the side of low temperatures and rapid recrystallization of the alloy. The recrystallization temperature of the phase hardening of austenite, determined by the x-ray method, corresponds to the temperature of recrystallization of the alloy. At the time of the transition of the martensite deformation into austenite, the thin structure of the austenite is so formed that it follows the nature and the degree of defectiveness of the martensite crystalline lattice and its lowered thermal instability. For this reason, recrystallization tables.

SUB CODE: MM/ SUBM DATE: 04May63/

ORIG REF: 005

OTHER REF: 002

BVK Card 2/2

L 14997-66 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) IJP(c) MJW/JD/HW
ACC NR: AP5028564 (N) SOURCE CODE: UR/0126/65/020/005/0741/0748

AUTHOR: Gorbach, V. G.; Izmaylov, Ye. A.; Malyshev, K. A.

ORG: Institute of Physics of Metals AN SSSR (Institut fiziki metallov AN SSSR); Kirgiz gosumiversitet (Kirgizskiy gosumiversitet)

TITLE: Strengthening of the aging Fe-Ni-Ti alloys during direct and reverse γ - α - γ transformations

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 5, 1965, 741-748

TOPIC TAGS: martensite steel, martensitic transformation, metal aging, hardening

ABSTRACT: The mechanism of phase hardening (direct and reverse martensitic transformation) was studied in very low carbon Fe-Ni-Ti alloys. The established mechanism, involving the formation of fine substructure in the phase hardened austenite, proved inadequate in explaining the large increases in strength which were commonly observed. The compositions and M temperatures of the alloys used are

UDC: 669.15'24'295-157.96: 539.4.016.3

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ACC NR: AP5028564

TABLE 1

A11	Che	mica.	l com	posit	ion,	8	Ī
Alloys	С	Si	Mn	Ni	Cr	TI	M _s
H27T 16 H27T1 16 H27T2	0,04 0,04 0,04 0,04	C,38 0,52 0,50 1,04	0,33 0,44 0,40 0,56	28,3 27,0 27,0 26,9	0,17 0,11 0,11 0,11	1,0 1,36 2,06	-20° -30° -50° -70°

The ingots were homogenized at 1150° C for 18 hrs, drawn into rounds, sectioned into samples and annealed at 1100° C for 2 hrs (vacuum). The austenitic samples were subsequently cooled from room temperature to -196° C to induce the γ - α transformation. The resulting substructure was analyzed by x-ray methods: harmonic analysis was used to measure the block size and the microdistortion and the data were recorded in terms of specific dilatation, $\Delta\theta/\tan\theta$. For each of the alloys the mechanical properties are given in relation to the block size. The characteristic

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ACC NR: AP5028564

block dimensions and the specific dilatation for the direct martensitic transformation did not change with increase in Ti content. The reverse transformation -- back to austenite--was done by immersing the specimens in hot oil baths and heating at rates of 80-100 deg/sec. In this case, the block dimensions (substructure) of the austenite was again similar for alloys with or without Ti. However, significant differences in the yield strength of the austenite, formed by reverse transformation of martensite, were induced by changes in the rate of heating or the temperature of heating. It was demonstrated that the large rise in strengthening in alloys with Ti could be attributed to aging effects. It was postulated that the higher strength of H27Ti (resulting from phase hardening by slow heating) was due to combined aging and phase hardening. Wedge shaped specimens were heated electrically after being quenched into liquid nitrogen in order to produce temperature gradients across the specimens. The change in hardness was given as a function of distance along the specimens or equivalently for changing aging conditions. Hardness\increased with aging, indicating the presence of some form of dispersion precipitate resulting from the Ti addition. Thus maximum hardening could be achieved in Fe-Ni--Ti alloys as a result of combined aging and phase hardening if the heating rate is slow or if the heating temperature is high enough. Orig. art. has: 6 figures, 5

SUB CODE: 11/

Card 3/3

SUBM DATE: 07Dec64/

ORIG REF: 007/

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GORBACH, V.G.; IZMAYLOV, Yo.A.; MALYSHEV, K.A.

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Hardening of aging Re-Mi-Ti alloys in the process of the direct and reverse 20 transformations. Fiz.-met. i metalloyed. 20 no.51741-748. N. 165. (MIRA 18:12)

1. Institut fiziki metallov AN SSSR i Kirgizskiy gosudarstvennyy universitet. Submitted December 7, 1964.

INVENTOR: Gorbach, V. G.; Vladimirov, L. R. ORG: none TITLE: Heat treating cast austentic steels. Class 18, No. 177442 [announced by the Institute of Physics of Metals, AN SSSR (Institut)8 SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1966, 30 TOPIC TAGS: heat treatment, metal heat treatment, phase hardening, metal hardening, annealing, austenitic steel, cast steel ABSTRACT: An Author Certificate has been issued describing a method of heat treating cast austenitic steels including phase hardening and steel, following recrystallization annealing. To improve the mechanical properties, the phase hardening. SUB CODE: 11/ SUBM DATE: 17Jan64/	L 23636-66 FWT(m)/FWA(d)/T/FWP(t) LJP(c) JD APO005285 SOURCE CODE: UR/0413/66/000/001/0030/0030	7
TITLE: Heat treating cast austentic steels. Class 18, No. 177442 [announced by the Institute of Physics of Metals, AN SSSR (Institut 18 fiziki metallov AN SSSR)] SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1966, 30 TOPIC TAGS: heat treatment, metal heat treatment, phase hardening, metal hardening, annealing, austenitic steel, cast steel ABSTRACT: An Author Certificate has been issued describing a method of heat treating cast austenitic steels including phase hardening and steel, following recrystallization annealing. To improve the mechanical properties, the phase hardening. SUB CODE: 11/ SUBM DATE: 17Jan64/		
SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1966, 30 TOPIC TAGS: heat treatment, metal heat treatment, phase hardening, metal hardening, annealing, austenitic steel, cast steel ABSTRACT: An Author Certificate has been issued describing a method of heat treating cast austenitic steels including phase hardening and recrystallization annealing. To improve the mechanical properties, the phase hardening. SUB CODE: 11/ SUBM DATE: 17Jan64/	 ORG: none	
ABSTRACT: An Author Certificate has been issued describing a method of heat treating cast austenitic steels including phase hardening and steel, following recrystallization annealing. To improve the mechanical properties, the phase hardening. SUB CODE: 11/ SUBM DATE: 17Jan64/	SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,	
of heat treating cast austenitic steels including phase hardening and steel, following recrystallization annealing. To improve the mechanical properties, the phase hardening. SUB CODE: 11/ SUBM DATE: 17Jan64/	TOUR TOUR THE PROPERTY OF THE	
SUB CODE: 11/ SUBM DATE: 17Jan64/	of heat treating cast austenitic steels including phase hardening and steel, following recrystallization annealing. To improve the mechanical properties, the phase hardening.	
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ACC NR. AT6036275

SOURCE CODE: UR/0000/66/000/000/0026/0038

AUTHOR: Gorbach, V. G.; Malyshev, K. A.; Borodina, N. A.

ORG: Institute of Physics of Metals, AN UkrSSR (Institut metallofiziki AN UkrSSR); Institute of Physics of Metals, AN SSSR (Institut fiziki metallov AN SSSR)

TITUE: Using phase transfromation and age hardening for induced strengthening of austenitic alloys

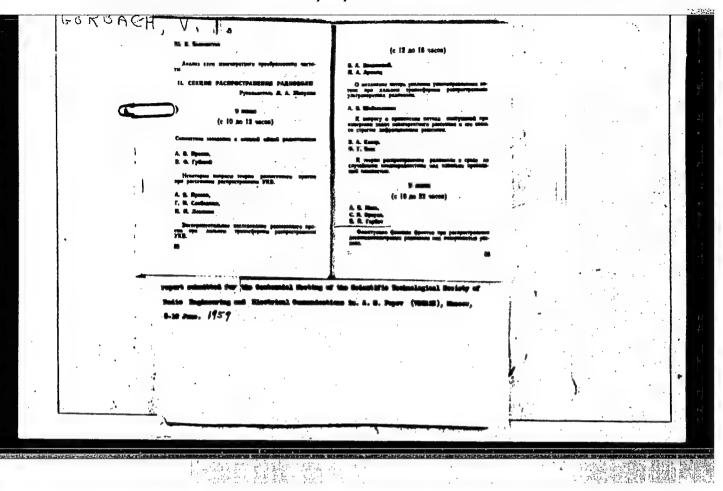
SOURCE: AN UkrSSR. Struktura metallicheskikh splavov (Structure of metal alloys). Kiew, Izd-vo Naukova dumka, 1966, 26-28

TOPIC.TACS: austenite transformation, iron nickel alloy, titanium containing alloy, metal aging, metal property/ N27T alloy, N27T2 alloy, N27T3 alloy

ABSTRACT: The feasibility of strengthening austenitic iron-nickel titanium alloys containing 27—29% nickel and 1.0—2.5% titanium by combining the effects of phase transformation and aging has been investigated. Phase transformation of alloys was achieved by refrigeration at -196C and reheating up to 800C, followed by cooling. This treatment produced $\gamma \rightarrow \alpha \rightarrow \gamma$ transformation, and increased the hardness of austemite to 225—265 HV, compared to 110—120 HV for the alloy after conventional treatment (annealing at 1100C followed by refrigeration). The hardness increased with increasing titanium content. Additional aging at 600C for four hr of the alloy

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SOV/141~2~3~8/26 Men', A.V., Gorbach, V.I. and Braude, S.Ya.

AUTHORS: TITLE:

The Effect of the Separation Boundary on the Fluctuations

of Radio Waves Propagated in a Non-homogeneous Medium

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1959, Vol 2, Nr 3, pp 388 - 394 (USSR)

ABSTRACT:

The authors consider, on the geometrical optics approximation (Ref 8), amplitude and phase fluctuations of radio waves propagated in a turbulent medium in the presence of a plane separation boundary. In this case, the resultant field at the detector e is given by the sum of the direct wave and the wave reflected from the separation boundary (Figure 1). The two fields are given by Eq (1) in which R and 9 are the modulus and the phase of the Fresnel reflection coefficient, respectively. The amplitudes and phases of the signals can be written in the form given by Eq (2), where the quantities with subscript "0" are mean values and ΔE_{i} and the fluctuation components of the corresponding quantities.

For the case $r_1 \approx r_2$ (Figure 1), Eq (1) may be rewritten

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The Effect of the Separation Boundary on the Fluctuations of Radio Waves Propagated in a Non-homogeneous Medium

in the form given by Eq (5), where the symbols are defined by Eqs (3) and (4). In the case of small fluctuations, one has the approximate relations given by Eqs (6) and (7) and the phase of the resultant signal is given by Eqs (8) and (9). Assuming that the medium is isotropic, and using Eq (9a), one obtains Eq (10), and R_{ψ} are the correlation coefficients for where R_E amplitude and phase fluctuations. Eq (10) was obtained by neglecting the small quantities given by Eq (11). When $\phi_1 \approx 27m$, E and ψ are given by Eq (12). In order to carry out numerical calculations, it is assumed, as a first approximation, that the amplitude and phase fluctuations of the separate components e1 the resultant field (Eq 9a) are the same as in the absence of the boundary. In that case one obtains Eq (14), where is the scale of imegularities . Using Eqs (15) and (14'), Eq (10) may be written in the form given by Eq (16

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The Effect of the Separation Boundary on the Fluctuations of Radio Waves Propagated in a Non-homogeneous Medium

It is clear from Eq (16) that, under the above assumptions, the amplitude and phase fluctuations in the resultant signal are equal in the distant zone. However, the dependence of the intensity of fluctuations on the wavelength, the parameter l, and the distance r, (Figure 1)

may be quite different from that in an infinite medium. A comparison of this theory with experiment shows good agreement and hence it is clear that in practice it is necessary to take into account the effect of the boundary on the fluctuations. The above solution was obtained for the plane problem. It would be desirable to obtain a solution for a spherical Earth, particularly in the regions where geometrical optics approximation does not hold. There are 4 figures and 10 references, 7 of which are Soviet and 3 English.

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SOV/141-2-3-8/26
The Effect of the Separation Boundary on the Fluctuations of Radio Waves Propagated in a Non-homogeneous Medium

Khar'kovskiy institut radiofiziki i elektroniki ASSOCIATION:

AN UkrSSR (Khar'kov Institute of Radiophysics and

Electronics of the Ac.Sc. Ukrainian SSR)

SUBMITTED: March 5, 1959

Card 4/4

9.9.000 AUTHORS:

s/141/59/002/06/002/024

TITLE:

Men', A.V., Braude, S.Ya. and Gorbach, V.I.

Experimental Investigation of the Phase Fluctuations of the Centimetre Waves Propagated Over the Sea Surface

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1959, Vol 2, Nr 6, pp 848 - 857 (USSR)

ABSTRACT:

The results of an experimental measurement of the fluctuation of the phase fronts during the propagation of vertically polarized radio waves sover the sea surface are reported. The frequency employed was 3 000 Me/s and the experiments were carried out under various meteorological conditions during July=September and October-December over a sea route having a length of 33 km. The differential method of measurement was employed, in which the fluctuations of the phase differences of the signals received by diversity antennae were employed to determine the intensity and the decorrelation of the phase fluctuations at various points of the wave front. In order to reduce the effect of the boundary refraction, the receiving systems were situated at distances of 2, 5, 10, 30 and 100 m from the

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Experimental Investigation of the Phase Fluctuations of the Centimetre Waves Propagated Over the Sea Surface

first (the standard) antenna. Altogether six antennae were employed. The antennae were situated about 4 m above the sea surface. The error in the measurement of the phase-difference fluctuations was less than # 10, even if the amplitude of the received signals varied as much as 60 db. The measurement showed that as a rule the deviations ϕ of the phase differences with respect to the average value obey the normal law for all the transmitter heights h, and the distances between the antennae.

The results of the measurements are indicated in Figures 1 to 11. Figure 1 gives the overall distribution of the phase-difference fluctuation for various distances between the receiving antennae. Figure 2 shows the normalized energy spectrum of the "slow" phase fluctuations for various distances between the antennae. Figure 3 shows the dependence of the effective value of the phase fluctuation on the distance between the receiving antennae Card2/4 and the height of the transmitter. The dependence of the

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Experimental Investigation of the Phase Fluctuations of the Centimetre Waves Propagated Over the Sea Surface

effective value of the "slow" and "fast" fluctuations on the distance and height h are illustrated in Figure 4. The characteristic of "slow" phase fluctuations for the case of an anomalous dependence on the height h are shown in Figure 5. The characteristics of the "complex" fluctuations are illustrated in Figure 6. The change of the intensity of the "slow" fluctuations for the July-September period are shown in Figure 7. Figure 8 illustrates the intensity of the phase fluctuations as a function of the wind velocity (for the July-September period). The effect of the sea waves on the intensity of the phase fluctuations is illustrated in Figure 9. The effect of the radio refractions on the phase fluctuations is shown in Figure 10. The dependence of the normalized mean-square fluctuations on the distance between the receiving antennae is illustrated in Figure 11. The authors

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S/141/59/002/06/002/024

Experimental Investigation of the Phase Fluctuations of the Centimetre Waves Propagated Over the Sea Surface

express their gratitude to V.F. Shul'ge, O.M. Lebedeva and B.F. Veber for their participation in carrying out the measurements.

There are 11 figures and 14 references, 7 of which are English and 7 Soviet.

ASSOCIATION: Institut radiofiziki i elektroniki AN USSR (Institute of Radio-physics and Electronics of the Ac.Sc., Ukrainian SSR)

SUBMITTED:

June 26, 1959

7(7), 9(9)

SOV/21-59-7-10/25 Men', A.V., Braude, S.Ya. Corresponding Member of the

AS UkrSSR and Gorbach, V.I.

TITLE:

AUTHOR:

Action of the Boundary on the Fluctuation of Radio

Waves in Non-homogeneous Medium

PERIODICAL:

Dopovidi Akademii Nauk Ukrains'koi RSR, 1959, Nr 7, PP 740-744 (UkrSSR)

ABSTRACT:

Equations are derived for the fluctuation of amplitudes and phases of radio waves propagated along a plane surface in a non-homogeneous medium. It is shown that the fluctuation increases when the amplitude of the mean field drops to zero. There are 3 diagrams, 11 mathematic formulas and 10 references, 7 of which are Soviet and 3 English

ASSOCIATION: Instytut radiofizyky i elektroniky AF URSR (Institute of Radiophysics and Electronics AS UkrSSR)

SUBMITTED:

March 6, 1959

Card 1/1

9 (9) AUTHORS:

Men', A. V., Braude, S. Ya., Gorbach, V. I.

SOV/20-125-5-18/61

- -

TITLE:

The Fluctuations of the Phase Fronts in the Propagation of Decimeter-radiowaves Over the Surface of the Sea (Fluktuatsii fazovykh frontov pri rasprostranenii desyatisantimetrovykh radiovoln nad poverkhnost'yu morya)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 5, pp 1019-1022 (USSR)

ABSTRACT:

Earlier papers dealing with this subject mainly take the amplitude fluctuations of radio signals into account. The phase fluctuations were investigated only in the zone of direct visibility (mainly over the mainland). The present paper deals with the least investigated problem, namely the experimental investigation of phase-front fluctuations over the sea. Measurements were carried out on the wave $\lambda=10$ cm in the case of vertical polarization during the period of from July to September and October to December along a line of 33 km length leading exclusively over the sea within the boundaries of the "illuminated zone". the "half-shade" and "shade". In these investigations the differential method was

Card 1/4

The Fluctuations of the Phase Fronts in the Propagation of Decimeter-radiowaves Over the Surface of the Sea

used, which (by measurement of the pulsation of the phase difference of the electromotive force in some reception antennas) make determination of the amount and the degree of decorrelation of wave front fluctuations in distributedly arranged measuring points. The arrangement of 6 measuring antennas along a straight line for this purpose is described. In this way it was possible to measure phase fluctuations within the frequency range of from 0.01 to 100 cycles. Besides, provision was made for the possibility of filtering and separate indication of low-frequency (< 0.3 cycles) and high-frequency (> 0.3 cycles) (i.e. of the so-called "slow" and "fast") fluctuations. According to the results obtained by these measurements the fluctuations of phase differences were, with rare exceptions, distributed in accordance with the normal law. However, the fluctuations observed can be coordinated to the steady random processes only with certain reservations, for various cases of phase difference fluctuations of signals were detected. The dependence of fluctuation intensity on the intervals between the measuring points remained qualitatively equal in the case of all

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The Fluctuations of the Phase Fronts in the Propagation of Decimeter-radiowaves Over the Surface of the Sea

experiments. The character of the height-dependence of intensity was considerably more manifold, and therefore it also served as a basis for the classification of experiments. All measurements may be subdivided into 4 main groups: 1) Quasisteady standard type of phase-fluctuations. Most experiments belong to this group which is characterized by a monotonous reduction of fluctuation intensity with an increasing height of the transmitter. Such a dependence is found with propagation within a local isotropic troposphere over a plane separating surface. These measurements have a high degree of steadiness and good reproducibility of the intensity and spectral composition of fluctuations. 2) The nonsteady standard type of fluctuations is characterized by a considerable non-steadiness of the fluctuations. 3) The anomalous type of phase-fluctuations: in measurements of this group the height-dependence differs considerably from that of the standard type. 4) The "flaring up" of fluctuations. This state usually did not last longer than a few dozen minutes, after which the usual state of the fluctuations was restored. There are 4 figures and 10 references, 3 of which

Card 3/4

The Fluctuations of the Phase Fronts in the Propagation of Decimeter-radiowaves Over the Surface of the Sea SOV/20-125-5-18/61

are Soviet.

ASSOCIATION:

Institut radiofiziki i elektroniki Akademii nauk USSR (Institute for Radiophysics and Electronics of the

Academy of Sciences of the UkrSSR)

PRESENTED:

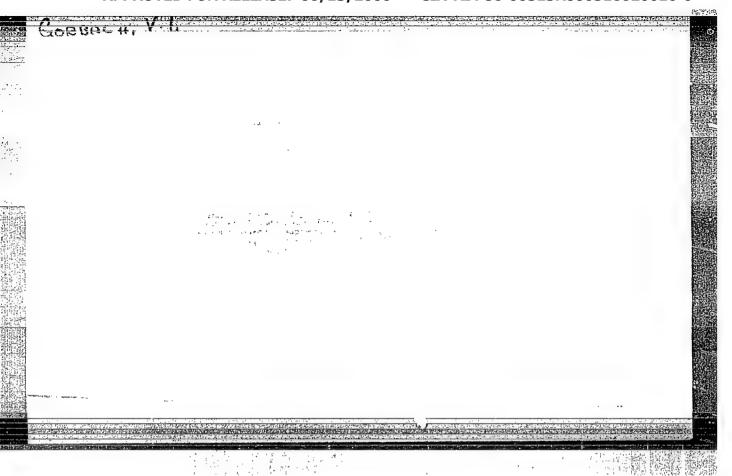
January 8, 1959, by B. A. Vvedenskiy, Academician

SUBMITTED:

January 8, 1959

Card 4/4

CIA-RDP86-00513R000516020016-0" APPROVED FOR RELEASE: 06/13/2000



- 1. GORBACH, V.I.
- 2. USSR (600)
- 4. Viticulture
- 7. Methods for quicker shaping of grapevines. Sad i og. no.10, 1952.

9. Monthly List of Russian Accessions, Library of Congress, January 1953, Unclassified

GORBACH, V. I.; OLCHANOV, V. L.

Viticulture

Concerning the study of alimentary space for the vine. Vin. SSSR 12 No. 7, 1952.

Monthly List of Russian Accessions, Library of Congress, October 1952. UNCLASSIFIED.

M Country : USSR Catogory CULTIVATED PLANTS. FRUITS. Berries. Abs. Jour. : REF ZHUR-BIOL .. 21, 1958, NO-96159 : Gorbach, V.I. Author Institut. : Semi-Pan Training Mitle : Orig. Dub. : Vinodeliye i vinogradarstvo SSSR, 1958, No.1, 26-29 Abstract

: Experiments made by the Samerkand Affiliate of the Uzbek Scientific Research Institute of Horticulture and Viticulture on a comparison between semi-fan and fan training of three grape varieties planted with a spacing of 2.5 x 2.5 meters have shown that on a four year average the former was not inferior to the fan training in besic agro-biological indices and surpassed it in economic

indices.

1/1 Card:

176

GORBACH, V. L.

GORBACH, V. L.- "Kinematics of the Operating Mechanisms of Optical Grinding and Polishing Benches." Min of Higher Education USSR, Leningrad Institute of Precision Mechanics and Optics, Leningrad, 1955 (Dissertations For Degree of Candidate of Technical Sciences)

So: Knizhnaya Letopis' No. 26, June 1955, Moscow

25(1)

PRASE I BOOK EXPLOITATION

807/1859

Gorbach, V. L.

Kinematika rabochikh organov opticheskikh shlifoval'no-poliroval'nykh stankov (Kinematics of Working Elements of Optical Grinding and Polishing Machines)
Moscow, Oborongiz, 1958. 107 p. 3,550 copies printed.

Ed.: M. M. Fel'dshteyn, Engineer; Ed. of Publishing House: P. B. Morozova; Tech. Ed.: V. P. Rozhin; Managing Ed.: A. S. Zaymovskaya, Engineer.

PURPOSE: This book is intended for scientific and engineering workers in the optical industry, and may also be used by students in this field.

GOVERAGE: The author gives the kinematic bases of the theory of manufacturing optical parts on modern grinding and polishing machines. He also discusses in detail the methods of kinematic investigation of the relative movements of the tool and the part. The practical application of the results obtained from such investigation will make it possible to outline the road to higher productivity of optical machines and to improve the quality of the optical parts produced. G. D. Ananov is mentioned as having contributed to this field. The

Card 1/4

Kinematics of Working (Cont.)		
author thanks K. G. Kamanin for help in preparing the book. There are 3 references: 1 Soviet and 2 French.		
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	$\sim 10^{-2}$
NOTE B	

GORBACH, V.L., kand. tekhn. nauk, dotsent

Patterns of velocities and accelerations of points of a body in plane parallel movement. Izv.vys.ucheb.zav.; mashinostr. no.7: (MIRA 16:11)

1. Dnepropetrovskiy sel'skokhozyaystvennyy institut.

SMIRNOV, S.S.; GORBACH, V.M.; EYSMONT, I.I.

Mechanization of the stopcock control board in the heating of coke ovens. Koks i khim. no. 5:32-33 '61. (MIRA 14:4)

1. Bagleyskiy koksokhimicheskiy zavod. (Coke ovens)

GORBACH, V.M.; DZHULAY, V.D.

Experimental work conducted by the anticorrosion research group of the Central Plant Laboratory. Koks i khim. no.1:68 164. (MIRA 17:2)

1. Bagleyskiy koksokhimicheskiy zavod.

AUTHOR:

Gorbach, C. H. (Engineer).

97-10-8/14

TITLE:

Experience with Winter Concreting

. (Opyt zimnego

betonirovaniya).

PERIODICAL:

Beton i Zhelezobeton, 1957, Nr.10. pp.410-411. (USSR).

ABSTRACT:

The No.47 Trust (Krasnolarsk) has carried out extensive concreting in severe winter conditions. In the winter of 1956-7 columns, beams, floor slabs, ventilation blocks etc., totalling 1,500 m³, were concreted on open yards. Electrical heating was applied during the drying period of the concrete until the product reached 25 - 30% of its final strength. During the slow cooling process the concrete reached 50% of its final strength. The heating elements, steel bars of 8-10 mm diameter, were placed in the concrete approximately 250 mm apart, allowing concreting to be carried out in temperatures down to -35 to - 40°C. In situ monolithic concreting was carried out during similar weather conditions and during the construction of industrial buildings. For this, heating was provided by electrode panels and maintained until the concreting achieved 70% of the final strength. For underground concreting, ordinary "cold" concrete was used. The reinforced

Card 1/2

Experience with Winter Concreting

97-10-8/14

concrete walls of the ventilating chambers of industrial buildings were made of concrete Mark 100. The concrete mix consisted of slag and Portland cement, in the proportion of 1-1:46-4.6. When concreting was carried out at a temperature of -5°C, 6% of nitrium chloride was added, and the additive increased in proportion to the fall in temperature. Tests were carried out on cubes 150 x 150 x 150 mm, hardening under exactly the same conditions, and of the same mix. The strength results were as follows:

After 28 days ... 54 kg/cm²
1 60 1 79
1 90 1 96 1
1 120 1 147-184

In 1956 concrete walls built during the winter, were checked, and the quality of concrete found to be satisfactory. There was no trace of either efflorescence or corrosion. There is 1 Table.

AVAILABLE:

Library of Congress.

Card 2/2

- 1. Concrete-Preparation 2. Nitrium chloride-Applications
- 3. Concrete-Temperature effects

24417 GORBACH, Yu. P. Ozhogi ot vosplameneniya gaza. Vrachob. Delo, 1949, No. 8, STB. 703-06.

SO: Letopis, No. 32, 1949.

"Stimulative Therapy in the Treatment of Skin Diseases."

Vestalk vererologii i dermatologii (Fulletin of Venerology Dermatology),

o 1, January-February 195h, (bilomper), Moscow.

Card 1/2

L 21399-66 EVT(m)/EPF(n)-2/EVP(t) IJP(c) SOURCE CODE: UR/0181/66/008/001/0242/0244 ACC NR: AP6003797 AUTHORS: Gorbachenko, B. I.; Tolpygo, K. B. ORG: Kiev State University im. T. G. Shevchenko (Kiyevskiy gosudarstvennyy universitet) TITLE: Determination of the polarization energy of the NaCl crystal in the presence of positive-ion vacancy SOURCE: Fizika tverdogo tela, V. 8, no. 1, 1966, 242-244 TOPIC TAGS: sodium chloride, crystal theory, electric polarization, crystal vacancy, positive ion ABSTRACT: The results of a microscopic theory of crystals, developed by one of the authors (Tolpygo, UFZh v. 3, 145, 1958 and earlier papers), is used to determine the energy of polarization of a crystal by an ion vacancy, and the work necessary to remove an ion from a crystal. The particular calculations are made for the sodium ion crystal. The final expression for the polarization energy is in the

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form of the sum of the polarization energy of point charge due to

L 21399-66 ACC NR: AP6003797

the polarization of the electron shells only, a term of similar nature but the short-range field, a mixed term due to the long and short range forces, and a term due to the energy of the displacements of the normal coordinates into new positions of equilibrium ments of the normal coordinates into new positions of equilibrium ments of the influence of the applied forces. The numerical value obunder the influence of the applied forces. The numerical value obtained for the polarization energy of the NaCl crystal is -3.21 ev, tained for the polarization energy of the noninertial polarization of the shells of the point-charge field. The work of removal of the positive ion is 4.77 ev, which is close to that obtained by results positive ion is 4.77 ev, which is close to that obtained by results by others. The binding energy per cell is 7.98 ev, which is also in good agreement with other results. The agreement confirms validity of Tolpygo's microscopic theory. Orig. art. has: 8 formulas.

SUB CODE: 20/ SUBM DATE: 12Ju165/ ORIG REF: 009

Card 2/2

USSR / Pharmacology, Toxicology. Chemotherapeutic V Agents, Antituberculous Agents.

Abs Jour: Ref Zhur-Biol., No 18, 1958, 85284.

Author
Inst: Institute of Tuberculosis, Acad. Med. Sc. USSR.
Title: The Reactions of the Central Nervous System in
Chronic Forms of Pulmonary Tuberculosis and Treatment of Them with Antibacterial Preparations.

Orig Pub: Tr. In-ta tuberkuleza Akad. med. nauk SSSR, 1956, Vol 8, 143-152.

Abstract: Histologic studies of the brain in chronic forms of tuberculosis have shown that, in the CNS, there are pronounced morphologic changes in the vessels, neuroglia, nerve cells of the brain, and nerve fibers. These changes are non-specific and resemble changes seen in different infectious and toxic con-

Card 1/3

63

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000516020016-0

USSR / Pharmacology, Toxicology. Chemotherapeutic Agents, Antituberculous Agents.

Abs Jour: Ref Zhur-Biol., No 18, 1958, 85284.

Abstract: ditions. The progressive dystrophic and necrobiotic changes in all the elements of the brain depend on the dissemination of the tuberculous process, the acuteness and duration of the disease, the severity of complications, and the individual properties of the organism. On the basis of pathologic changes in the brain in tuberculosis, there is damage to the walls of vessels, disturbances of their permeability, disorders of the metabolic processes in the brain tissues, and also disruptions of the functional state of the neuroglia and nerve cells. Changes in the elements of the CNS depend on the promptness and intensity of antibacterial therapy. If the latter is continued sufficiently long and exhibits a clinical effect on the tuberculous pro-

Card 2/3

Agents, Antituberculous Agents.

Abs Jour: Ref Zhur-Biol., No 18, 1958, 85284.

GORBACHENKO, L. A., Cand Med Sci (diss) -- "Patho-histological changes in the brain in chronic forms of pulmonary tuberculosis of man and in experimental tuberculosis in cats". Minsk, 1957. 19 pp (acad Med Sci USSR)(KL, No 11, 1960, 137)

USSR / Human and Animal Pathology. Nervous System. S-2 Contral Nervous System.

Abs Jour: Ref Zhur-Biol., No 14, 1958, 64759.

Author : Gorbachenko, L. A.

Inst : Institute of Tuberculosis, Academy of Medical

Sciences, USSR.

Title : Morphological Reactions of the Central Nervous

System in Experimental Tuberculosis in Cats.

Orig Pub: Tr. in-ta tuberkuleza. Akad. med. nauk SSR, 1957,

9, 313-322.

Abstract: Changes in the basic argyrophilic substance (AS)

of the cerebral blood vessels appear as early as 2 hours after infection. Progressive dilution of AS is accompanied by hydropic changes of the nerve cells. Subsequently, AS thickens, acute changes in the nerve cells diminish, and simultaneously

Card 1/2

APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000516020016-0"

USSR / Human and Animal Pathology. Nervous System. S-2 Central Nervous System.

Abs Jour: Ref Zhur-Biol., No 14, 1958, 64759.

Abstract: proliferation of the macroglia and of the microglia takes place. As the process continues, vascular lesions increase in the lungs, as well as
dystrophic and necrobiotic processes in the nerve
cells and in the glia cells. To the extent of the
recovery of the animals, these changes disappear,
the AS thickens functional-morphological changes
of the AS and of the elements of the glia have an
important bearing on the development of changes in

the nerve cells. -- G. I. Vavilin.

PUZIK, Valentina Il'inichna; UVAROVA, Ol'ga Alekseyevna; GORBACHENKO, Lev Aleksandrovich; TOLGSKAYA, M.S., red.; SENCHILO, K.K., tekhn. red.

[Histopathology of the nervous system in tuberculosis in man]
Gistopatologiia nervnoi sistemy pri tuberkuleze u cheloveka.
Moskva, Medgiz, 1961. 222 p. (MIRA 15:7)
(TUBERCULOSIS—NERVOUS SYSTEM)

GORBACHENKO, N.K.: YAKOVLEV, V.I.

Screen for observing ingot stripping from preheating furnaces.

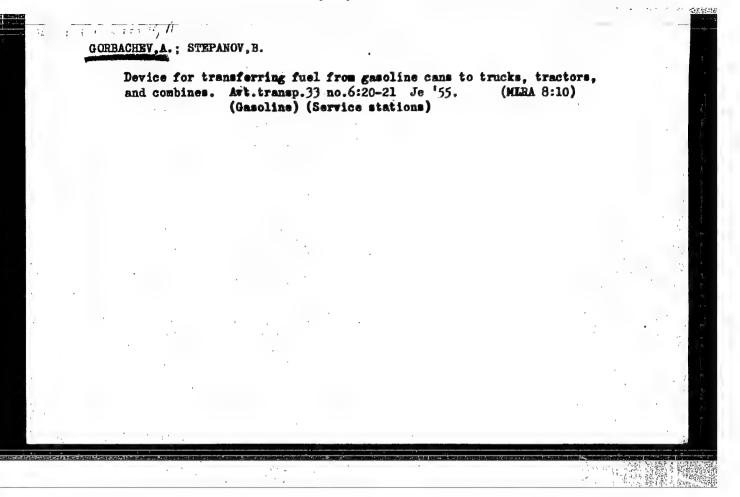
Sbor.rats.predl.vnedr.v proizv. no.1:27 '61. (MIRA 14:7)

1. Konstantinovksiy metallurgicheskiy zavod. (Furnaces, Heating)

BLINOV, V.A., nauchnyy sotrudnik, kand.tekhn.nauk; RUMYANTSEVA, L.P..
nauchnyy sotrudnik; ANISHCHUK, Ye.N., nauchnyy sotrudnik; SHVELEVA,
L.S., inzh.; GORBACHENKOVA, A.V., inzh.

Emulsion dyeing of cotton and blended cotton-lavsan goods with the leuco esters of vat dyes. Tekst.prom. 25 no.2:65-67 F '65.

(MIRA 18:4)
] Nauchno-issledovatel skiy institut organicheskikh poluproduktov
i krasiteley (for Blinov, Rumyantseva, Anishchuk). 2. Kombinat
"Trekhgornaya manufaktura" imeni Dzerzhinskogo (for Shmeleva,
Gorbachenkova).



GORBACHEV, A. Fashion, color, and the customer. Sov. profsoiuzy 18 no.6: 34-35 Mr '62. (MIRA 15:3) 1. Direktor Moskovsko-Leninskogo universal'nogo magazina. (Clothing industry)

AID P - 4556

Subject

USSR/Electronics

Card 1/2

Pub. 90 - 10/11

Author

: Gorbachev, A. A.

Title

: Compensation method of reducing nonlinear distortions.

Periodical

Radiotekhnika, 4, 67-74, Ap 1956

Abstract

In April 1954, Prof. D. V. Ageyev suggested to the author the investigation of the compensation method of reducing nonlinear distortions. The negative feedback which is widely applied to reduce nonlinearities in large 1.f amplifiers has some essential deficiencies. The author investigates the basic theoretical aspects of the compensating method which consists in compensating by shifting the distorted voltages (or currents) by 180°. Hepresents connection diagrams, finds the stability of the method, the characteristics of the compensating circuit, and finally checks the method experimentally. He finds that an 8 to 10 fold reduction of nonlinear

Radiotekhnika, 4, 67-74, Ap 1956

AID P - 4556

Card 2/2 Pub. 90 - 10/11

distortions is obtainable. Two diagrams.

Institution: None

Submitted : D 17, 1955

GORBACHEV, A. A.

"Adapter for Elimination of Pulse Interferences," by A. Gorbachev, Radio, No 11, Nov 56, pp 42-43

This article describes the construction and performance of a one-tube (6N1P) pulse interference eliminator for commercial radio receiving sets. The device operates on the principle of lowering the level of the pulse interference, as suggested by the Soviet scientist, D. V. Ageyev.

This adapter has been tested with the Baltika, radio receiving set, and was found to be able to eliminate almost completely industrial and atmospheric interferences of the nature of individual short pulses; however, some interferences of a continuous nature were not fully suppressed.

Sum 1219

AUTHOR:

COMBACHEV, A.A.

108-6-8/11 _1

TITLE:

The Experimental Investigation of a Restriction of Impulse
Noises by the Transformation of the Spectrum and with the Help of
an observation Threshold. (Eksperimental noye issledovaniye
ogranichemiya impul'snykh pomekh s preobrazovaniyem spektra i
sledyashchim porogom, Russian)

PERIODICAL

Radiotekhnika, 1957, Vol 12, Nr 6, pp 64-68 (U.S.S.R.)

ABSTRACT:

First, the system of a limiter with two linear spectrum transformers is dealt with, and it is shown that the noise level at the output of the investigated device decreases down to the level of the high frequency components of the useful signal (which is usually considerably below the average signal level). The advantage offered by this method as a measure against noise is the conservation of the necessary transmissivity range of the low frequency part of a receiver. The system with linear transformers and with a limiting observation threshold is investigated and it is shown that for the technical realization of these ideas, the method which uses a limiter with a limiting threshold which watches the level of the low frequency useful signal, is the better one. The results obtained by the experimental investigation of a limiter system with an observation threshold and with two linear spectrum transformers are described. It was found that

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The Experimental Investigation of a Restriction of Impulse Noises by the Transformation of the Spectrum and with the Help of an Observation Threshold.

this system is well able to suppress impulse noises with a duration of up to some milliseconds. The reception, which, at first, was impossible, becomes quite satisfactory, and sometimes also good. The advantage of this method is the necessity of using three tubes. (With 8 Illustrations).

ASSOCIATION: PRESENTED BY:

Not given

SUBMITTED:

3.5.1956

AVAILABLES

Library of Congress

Card 2/2

AUTHOR:

Corbachev, A. A., Regular Member of the

108-1-5/10

Scientific-Technical Association of Radio En-

gineering and Electric Communications

TITLE:

The Suppression of Pulse Interference by Means of a Non-Linear Transformation of the Form of a Frequency Spectrum (Podavleniy impul'snykh pomekh posredstvom nelineynogo

preobrazovaniya formy ikh chastotnogo spektra)

PERIODICAL:

Radiotekhnika, 1958, Vol. 13, Nr 1, pp. 56-61

ABSTRACT:

The author experimentally investigated the method by D. V. Ageyev for the suppression of pulse interference by means of using two reciprocal spectral transformations and an amplitude limiter. It was found that this method is much more effective than that of the usual limitation. The further investigations in this direction showed principially new possibilities for the increase of the effectiveness of similar systems. In this method the separation of signal and interference by using two differences between the pulse interference and the signal - the difference with respect to the amplitude and to the spectrum - is realized. Various variants for a linear transformation of the spectrum

Card 1/2

preceding the linear limitation of amplitude are investigated

The Suppression of Pulse Interference by Means of a Non-Linear 108-1-5/10 Transformation of the Form of a Frequency Spectrum

and the usefulness of the application of transformers with a resonance characteristic is substantiated. The results of theoretical and experimental investigations are given. It is shown that in using two reciprocal spectrum transformers together with a limiter an essentially greater effectiveness in the suppression of pulse interference is obtained then is the case with using a simple limiter. The characteristics of the first transformer must be of such a kind that 1.the greatest ratio between the interference level and the level of the effective signal at the input of the limiter is secured, and 2.- the limitation leads to such a transformation of the form of the interference-spectrum that in it the second transformer can effect the selection of the signal with the greatest efficiency. In the reception of radio programs these demands were met to a greatest extent by an input transformer with a resonance form of the frequency characteristic. In this the resonance frequency must be sufficiently high as it must be outside of the limits of the basic band in the spectrum of the (intelligence) effective signal. There are 8 figures and 4 references, 3 of June 26, 1957 3 of which are Slavic.

SUBSCITTED:

Card 2/2

1. Pulses-Interference-Suppression transformations-Applications

2. Frequency-Spectrum-Honlinear-

CORRECHEV, A.A., Cand Tech Soi — (dies) "Study of the thod of suppression of impulse interferences by means of non-linear transformation of the form of their frequency spectrum."

Gor'kiy, 1959. 7 pp (Min of Migher Education . Cor'kiy Polytech Inst in A.A. Zhdanov. Chair of Radioreceiving 150 copies (KL, 30-59, 120)

GORBACHEV A.A.; KRYUKOV, M.

Interest in radio should be developed on a world-wide scale.
Radio no.2:12 F 60. (MIRA 13:5)

1. Chleny soveta Bryanskogo radiokluba. (Radio)

1163,1138,114

5/188/60/000/006/002/011 B101/B204

AUTHOR:

Gorbachev, A. A.

TITLE:

The change in the reflection coefficient of metals if direct

current flows through the latter

PERIODICAL:

Vestnik Moskovskogo universiteta. Seriya 3, fizika,

astronomiya/5no. 6, 1960. 8-9

TEXT: Whereas interaction between light and metal has been made the object of accurate research for cases in which the term $4\pi j/c$ of the Maxwell equations may be neglected, the present paper deals with the more complicated problem of the case j / O. The conduct of current through metal must produce an effect upon its properties and thus also upon the properties of the light reflected by it. It was found that the reflective power of the metal is changed during the passage of current. According to the nature of the metal, a relative change in the reflection coefficient occurs by tenth parts of percents at current densities of 1 - 3 a/mm2 or 7 - 10 a/mm². Measurement of $\delta = (I - I_0)I_0$ was carried out by means of an apparatus similar to that developed by G. S. Krinchik (1959). The

Card 1/4

The change in the reflection ...

20329 S/188/60/000/006/002/011 B101/B204

specimens through which the current was sent, were mechanically polished lamellas having a cross section of 0.5 · 6 mm². Measurements were carried out for white light. Stabilization of the current of the light source permitted measurements, whose errors did not exceed 0.01%. The effect was measured, which in analogy to magnetic optics may be described as meridional effect. The vector j of current density lies in the plane of incidence of light. The experimental data for the p-wave are given in the table. (In the case of the s-wave this effect lacked nearly entirely). The angle of incidence of light was 45°. By p-wave the light beam is understood, which is polarized in such a manner that the electric vector lies in the plane of incidence of light. Measurements for Ni and W were carried out at 3 and 5 a/mm2 more accurately. In the case of other metals, only qualitative measurements were carried out for the purpose of determining amount and sign of b. That an oxide film produced no effect upon & could be seen from the fact that measurements carried out 2 minutes and 24 hours after polishing agreed within the limits of measuring errors. The change in the intensity of & has different signs in different metals. In the case of some metals the reflection coefficient is increased during the passage of current, in case of others it is Card 2/4

The change in the reflection...

20

30

20329 S/188/60/000/006/002/011 B101/B204

diminished. Measurements were carried out on the eight non-ferromagnetic metals W, Mo, Bi, Sb, Zn, Pt, Al, and Cu, as well as on the two ferromagnetic metals Fe and Ni. In the non-ferromagnetic metals investigated, δ has the same sign as the R of the Hall constant. The opposite sign of & with respect to the constants R, and R in Fe and Ni might be explained by an extraordinary Hall effect, as in ferromagnetics, the second Hall term is larger than the first. It is mentioned that in Fe and Ni, the value of & depended on the thermal treatment of the specimens. The table gives the measured results for tempered specimens of Ni and Fe. Nontempered specimens showed a considerably lower effect. In other metals, the effect produced by tempering was not investigated. A certain tendency of an increase of 5 with an increase of the Hall constants was observed. Thus, & is larger for Ni, Fe, Mo, and W than for Al, Cu, and Zn; in Bi, & is even larger. A change in the current direction produced no influence upon magnitude and sign of o. [Abstracter's note: The above is a complete rendering of the original.] There are 1 table and 1 Soviet-bloc reference.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet, Kafedra magnetizma Card 3/4 (Moscow State University, Department of Magnetism)

	The change in	the reflection		20329	
	SUBMITTED:			S/188/60/000 B101/B204	0/006/002/011
	Л Материал	Магоћ 3, 1960 Бид поляризации	3 Изменение интенсивности плотности	1 8 % при различных эх тока	
			1А/им* 3А/им*	5А/мм ⁸ 10А/мм ⁸	
0	Bi Sb W W Ni Fe Mo Al Zn Cu Pt Legend to the in the intensi 5) s-wave.	Ур-волна ба-волна ур-волна ур-волна ур-волна ур-волна ур-волна ур-волна ур-волна ур-волна ур-волна ур-волна ур-волна ур-волна ур-волна ур-волна ур-волна ур-волна	-0.5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.25 0.9 0 0.8 0.3 0.3 0.3 0.2 0.2 0.2 1ight polarizationt densities;	tion; 3) Charge
	Card 4/4				

6.9440

27764 8/058/61/000/007/071/086 A001/A101

AUTHOR:

Gorbachev, A.A.

TITLE:

On interference resistance of a limiter with the threshold of limiting, following the signal level

PERIODICAL:

Referativnyy zhurnal, Fizika, no. 7, 1961, 323, abstract 7Zh297 ("Tr. Gor'kovsk. politekhn. in-ta", 1960, v. 16, no. 2, 12 - 16)

TEXT: The author discusses the problem of reducing the noise-to-signal ratio at radio reception in the presence of pulse interferences. A limiter with the threshold following the signal level ensures the ratio of interference level to signal level not exceeding unity during the entire time of reception; this is its advantage in comparison with the simple amplitude limiter with a constant threshold. The author considers one type of pulse interferences whose individual pulses have the shape which is well approximated by function $u(t) = at \exp(-\alpha t)$ for t > 0 and u(t) = 0 for t < 0. He states that the ratio of interference energy at the output of the proposed limiter to interference energy at the output of the constant threshold is equal (under the same con-

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On interference resistance ...

27764 8/058/61/000/007/071/086 A001/A101

ditions at the input) to the quantity which is known in broadcasting as nonunication of transmission. This is confirmed by experimental results. The application of the proposed limiter can result in a three- or four-fold reduction of with constant threshold.

[Abstracter's note: Complete translation]

G. Medvedev

Card 2/2

89826

6.7300 (1524) 6.9416 6.9800

S/111/61/000/001/001/002 B107/B212

AUTHORS:

Gorbachev, A. A., Candidate of Technical Sciences, and Rodionov, Ya: Gardidate of Technical Sciences (Gor'kiy)

TITLE:

Method of increasing the interference immunity of multichannel systems used for high-frequency telephony

PERIODICAL:

Vestnik svyazi, no. 1, 1961, 13-14

TEXT: A unit that is able to suppress periodic pulse interferences in multi-channel systems of high-frequency telephony is briefly described. The unit has been developed by the Gor'kiy Scientific Research Institute. It works on the principle of eliminating the signal and also the interfering pulse. If the duration of the short interruptions does not amount to more than 35%, then the conversation is still well intelligible, even under adverse conditions, i.e., if the interruptions have a frequency of 300-888 cps. The unit consists mainly of three subsequent stages. 1) The first stage separates the interfering pulse from the mixture of signal and interference, and is used to control all other

Card 1/4

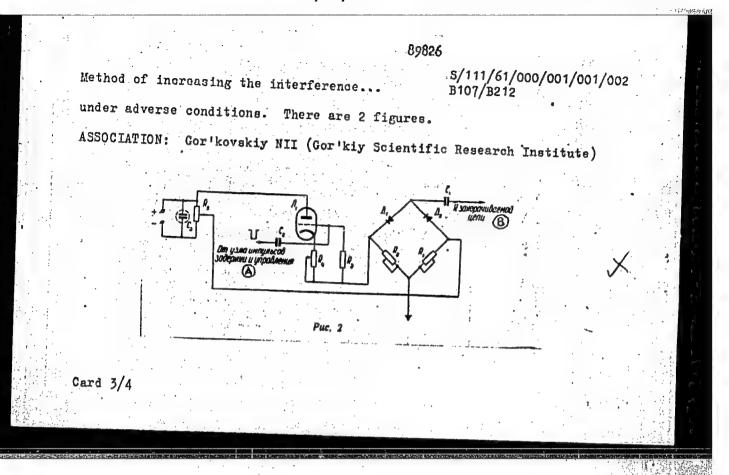
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Method of increasing the interference...

S/111/61/000/001/001/002 B107/B212

stages. This stage consists of a tuned amplifier which is tuned to the carrier frequency of the interferences, and its resulting band width is such that the interference amplitude is amplified maximally compared to the signal. 2) The second stage delays the interfering pulse by an interval which roughly corresponds to its period, and a control pulse is generated, which corresponds to the duration of the interference pulse. The stage consists of a number of multi-vibrators which are cleared by pulses of stage 1. 3) The third stage is blocked for the duration of the control pulse. Every pulse is used to eliminate the following pulse. Fig. 2 shows a simplified circuit diagram, and the mode of operation is explained in its legend. The unit has been tested with communication systems of the type B-12 (V-12) at three amplifier stations. The input has been applied to the socket of the filter K-33 (K-33), and the output to the control grid of the second amplifier tube of the element By (VU) belonging to the system V-12. It has been found that the psophometric interference voltage will drop by a factor of 3 - 25. Transient interferences and non-linear distortions of the voice signal are much higher due to the method applied, but intelligibility is maintained even

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Method of increasing the interference...

S/111/61/000/001/001/002 B107/B212

Legend to Fig. 2: A - from stage 2; B - to short-circuited chain; main component of the stage is a two-side diode limiter consisting of diodes A_1 and A_2 . The diode limiter is connected to the receiver part over a tuning capacitor C_1 . Between two interference pulses, the limiter is blocked by the current passing through resistors R_1 and R_2 . The current is controlled by R_4 ; tube A_1 is used to open and close the circuit. A control pulse will block the tube when an interference pulse has been received; the limiter opens, and due to its small resistance, the group tract of the system is short-circuited. Tube A_1 opens again when the pulse stops, and the limiter is closed again. A bell-shaped pulse is found to be best for a blocking pulse.

Card 4/4

GORBACHEV, A.A.; KRASIL'NIKOV, V.D.

Detection of AM and FM oscillations using the steepness of the high-frequency oscillation. Izv. vys. ucheb. zav.; radiotekh. 4 no. 2:218-220 Mr-Ap '61. (MIRA 14:5)

S/126/61/011/002/003/025 E032/E514

AUTHORS: Krinchik, G. S. and Gorbachev A. A.

TITLE: Magnetooptic Resonance in Nickel on Ultraviolet

Frequencies

PERIODICAL: Fizika metallov i metallovedeniye, 1961, Vol.11, No.2, pp. 203-206

TEXT: In a previous paper the present author and R. D. Nuraliyeva (ZhETF, 1959, 36, 1022) pointed out that the magnetooptic resonance due to electronic s-d transitions is to be expected in the ultraviolet region of the spectrum. In the present paper an experimental study of this effect is reported. apparatus used to measure the magnetooptic characteristics of nickel and iron below 2480 A was similar to that described by the first of the present authors in Ref. 4. The detecting element was a \$39-18 (FEU-18) photomultiplier, while the compensating element was the vacuum photocell UB-4 (STsV-4). The spectrograph MCM-22 (ISP-22) was used in conjunction with the mercury quartz lamp PK-4 (PRK-4) as the monochromator. The principal difficulty was to screen the photomultiplier from the electromagnetic Card 1/4

Magnetooptic Resonance

\$/126/61/011/002/003/025 E032/E514

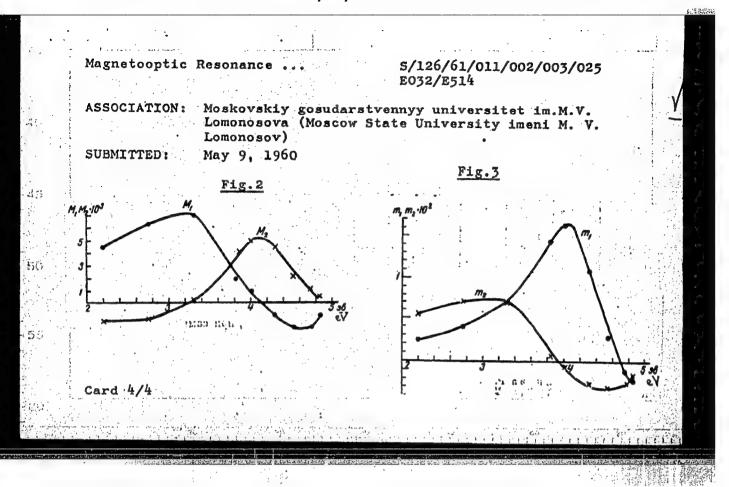
field, since it was necessary to measure very small changes in the intensity of the reflected light during the magnetization reversal in ferromagnetic specimens. In order to reduce the magnetic flux leakage, the specimens were in the form of toroids (internal diameter 20 mm, external diameter 30 mm). A part of the surface of these toroids, having an area of about 1 cm2, was kept free of the magnetizing coil and the light was reflected from it. The specimens were polished and annealed in vacuum prior to insertion of the magnetizing coils. Magnetic saturation could be obtained using 1000 turns and a current of 0.5 A. Fig.2 gives the real and imaginary parts of the magnetooptic parameter calculated by Nuraliyeva, using the optical constants for nickel as given by R. S. Minor and W. Meyer in Ref.5. Fig.3 gives the relative change in the real and imaginary parts of the non-diagonal term of the dielectric constant tensor, i.e. $m_i = \text{Re}(\epsilon M)/\epsilon_1$ and $m_2 = Im(\epsilon M)/\epsilon_2$, where $\epsilon = \epsilon_1 - i\epsilon_2$ is the diagonal term and $M = M_1 - iM_2$ is the complex magnetooptic parameter. In both figures the energy (in eV) is plotted along the horizontal axis. The physical meaning of m_1 and m_2 is as follows. When M < 1Card 2/4

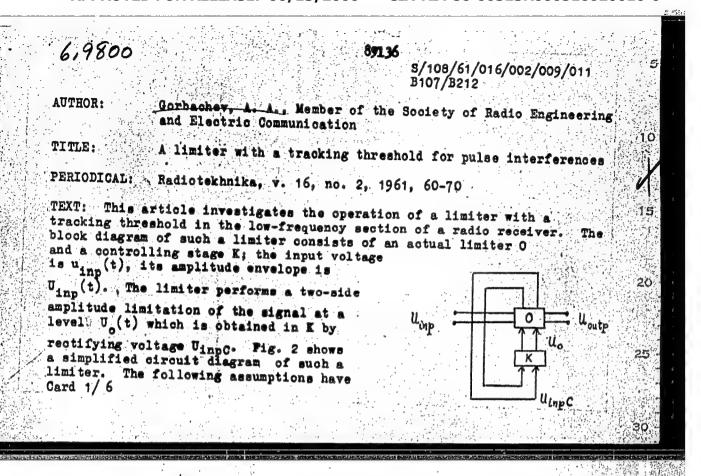
Magnetooptic Resonance

S/126/61/011/002/003/025 E032/E514

μ < 1 we have \$\frac{1}{2} = \frac{1}{2} \text{ KM}, where \$\frac{1}{2}\$ and \$\frac{1}{2}\$ are the dielectric constants for right and left-handed circularly polarized waves (G. S. Krinchik and M. V. Chetkin, Ref. 6). It follows that m describes the difference in the real parts of the dielectric constant of a saturated ferromagnetic for right and left handed polarizations, while m describes the difference in the imaginary parts, i.e. the energy loss. In the case of ferrotom and m exhibit the following behaviour: m changes sign at the resonance frequency, while m in general passes through a determined as the frequency at which m changes sign and this occurs at 4.7 ± 0.2 eV. This result is in agreement with X-ray is suggested that the resonance is due either to s-d transitions or to plasma oscillations of free electrons. Measurements were also made on iron specimens but the magnetooptic resonance was not 4 soviet and 3 non-Soviet.

Card 3/4

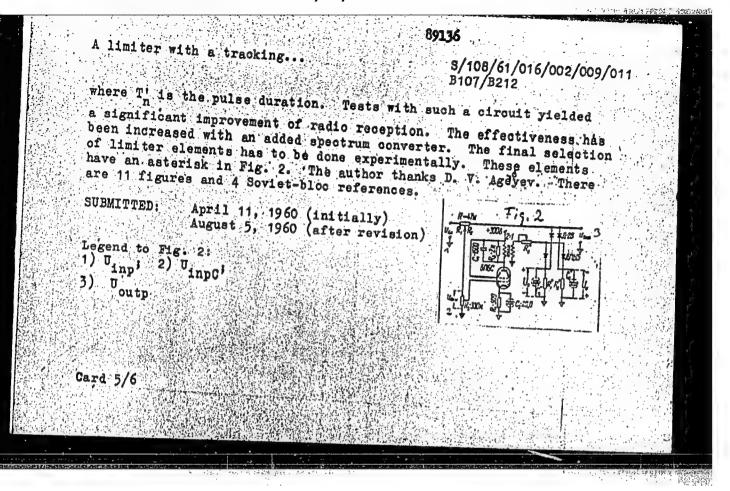




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891.36	
A limiter with a tracking S/108/61/016/002/009/011 B107/B212	31,
been made for calculations: The rate of change of the signal envelope shall be much smaller than that of its instantaneous values. If such magnitudes are constant with respect to time they shall be denoted by	.0
Uinp etc. The inertia of the limiter shall be negligible with respect	
to the signal. The transmission coefficient of 0 is assumed to be equal to 1 for amplitudes of the signal which stay below the threshold. R is assumed to be much greater than the diode resistance in forward direction. The following is valid for the general case:	45 -
$U_{\text{inpC}} = U_{\text{o}} + (U_{\text{inp}} - U_{\text{o}})$ h; h denotes the distribution coefficient difference $(U_{\text{inp}} - U_{\text{o}})$. This coefficient is assumed to be independent	50
of Uinp. Basically there are two different operations of a limiter:	
$h = 1$ and $h \ll 1$. It has been found experimentally that specific dis-	and the second
tortions will occur for lower values of U_{inp} and h \ll 1. A calculation	
resulted in $\overline{U_0} = \frac{\frac{1}{a} 2h \overline{U_{ax}} (1-h) \pm \sqrt{\frac{1}{a^a} - 4 \frac{h}{a} \overline{U_{ax}} (1-h)}}{2 (1-h)^a} \tag{4}$	
	50.2

				A SECTION ASSESSMENT
	A limiter with a		89136 S/108/61/016/002/009/0 B107/B212	11
	1.e., there are t $\alpha = \frac{1}{V_0} / \frac{1}{V_{inp}^2} $	wo values of U for 1, alculating the stabili	$/\alpha < \overline{U_{\text{inp}}} < 1/[4h\alpha(1-h)].$ ty of the system showed	10
			(7)	, 6
	K in equilibrium. K'(1-h) < 1, the into another is a higher interference be operated at high	From Eq. (7) follows: transition rate of the function of rc, K', an ce stability for small the enough voltages in o	from its equilibrium condition ansmission coefficient for state of the system is instabile for system for changing from one state of the system shows a values of h, the limiter has to reder to avoid signal distortion of a sinusoidal	ge tate 20
	Card 3/6		$\left[\frac{m}{1+(\Omega_{\alpha}/C)^{\alpha}}\right], \qquad (11)$	2 <i>5</i> 30
द्राद्राहरू न्युक्तस्य र	क्रमेश्री संस्थान विश्वस्था स्थापना स् रे		Gibera Sum Allerta (a. 81) seguinemente en estimbre de la celebra (b. 1823).	

89136 5/108/61/016/002/009/011 A limiter with a tracking... B107/B212 where $\eta = (a-b)/a$ (Fig. 6), m modulation depth coefficient, Ω envelope frequency, rC time constant of the impedance between K and O. Distortion caused by irregular changes of the input signal can be estimated from to: to is the time interval in which Uo reaches the value Uinp. $\frac{rC}{\kappa(1-h)-1}\ln\frac{\kappa-1}{\kappa h}=8rC.$ (14) The effect of square-type pulse interferences has also been studied: noise level attenuation caused by the limiter is 50 $\theta = \frac{\overline{U}_{n,n}}{\overline{U}_{n,n,n}} = \frac{1 - K_n(1-h)}{K_n h}$ (19) (19), denotes the transmission coefficient of the stage for the envelope K denotes the transmission coefficient of the stage for the envelope of the interference Julse. The following expression is obtained for a group of nearly blending pulses: (20)Card 4/6



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S/108/61/016/008/004/006 D280/D304

6.4400

Gorbachev, A.A. and Vinogradov, M.I., Members of Society

(See Association)

TITLE:

AUTHORS:

Application of the signal extrapolation method in pulse

interference suppression

PERIODICAL: Radiotekhnika, v. 16, no. 8, 1961, 48-53

TEXT: The present article gives a description of a simple arrangement which makes possible the blocking of the LF end of the receiver for the duration of interference and also permits the extrapolation of the signal using two or three terms of the polynomial in (Eq. 1). Some experimental results are also given which illustrate the degree of distortion of the extrapolated signal. Figs. 1 and 2 show the bloc and circuit diagrams of the arrangement in which the extrapolation of signal is carried out using two terms only of the polynomial (1). The wanted signal, after being differentiated by R_1 and C_1 is applied to the grid of a cathode follower T_1 and from R_3 is applied to a gating cct consisting

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Application of the signal.

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S/108/61/016/008/004/006 D280/D304

of diodes D_1 , D_2 , - and of the controlling tube T_2 . With no interference T_2 is cut off, the signal charges the 'memory' capacitor C_3 which does not unduly affect the HF components because of the low output impedance of the cathode follower and of the diodes D_1 and D_2 . The operating point of the diodes chosen on linear parts of their characteristics, is obtained by passing an additional d.c. current from source E_{a2} . From C_3 the signal goes on to an integrating network R_5 and C_4 ; so that R_1C_1 and R_5 are so chosen so as to assure the equalization of the frequency response and when interference is not present the extrapolated signal is transmitted without distortion. When at an instant-to-interference appears (Fig. 3a) its pulse, is applied with some phase load C_1 to a shaping network (one shot multivibrator on tube C_3). The resulting rectangular pulse with duration C_3 0 makes the tube C_3 1 conducting, the resultant voltage drop across C_4 1 cuts off diodes C_3 1 and C_3 2 conducting, the resultant voltage drop across C_4 3 cuts off diodes C_3 4 and C_3 6

Application of the signal... 25522

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Do their internal resistance increases and Ca is in effect disconnected from load R_{π} of the cathode follower. The resultant increase in the time constant of the discharge of $\mathbf{C}_{\mathbf{K}}$ permits the retention of the signal for the duration of the interference pulse (Fig. 3b). After the end of the blocking pulse diodes D, and D, start conducting and C, rapidly charges to the potential of the signal, the integrating network $R_{5}^{}C_{4}^{}$ restores the signal to its original shape, except for time $\mathcal{T}_{0}^{}$ during which it is replaced by a section of a straight line, corresponding to the derivative of the signal (Fig. 3c). The cct is balanced by R. The amplitude and duration of the blocking signal are adjusted by potentiometers R_{11} and R_{12} 6H3 \hbar (6N3P) double triodes were used. The diodes used were either semiconductor diodes 47-427 (DG-Ts27) or therm ionic diodes 6x2 77 (6Kh2P). The frequency response of the - extrapolating circuit is flat within 6 db from 100 to 7000 c/s. The amplitude response is linear for input signal range 0-30 volts, with distortion less than 1.5%. The overall gain is 0.03. The noise level at the output Card 3/6

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S/108/61/016/008/004/006 D280/D304

Application of the signal...

is 60 to 70 db below maximum signal at the interference repetition frequency $f_n = 100 \frac{1}{100} \cdot 5000 \text{c/s}$, the 'seeping through' of the interference during time? is practically zero. From circuit data the interference suppression should not be less than 60 db for DG-Ts27 and 70 db for 6kh2P. The duration of the blocking pulse can be varied from 40 to 500 microsecond. For extrapolation using one term of the polynomial to 500 microsecond. For extrapolation using one term of the polynomial - C, was replaced by a resistance of 6.2 k/ohm, with the addition of one differentiating cct at the input and of one integrating at the output. In extrapolating a speech with a variable frequency f_n and \mathcal{T}_0 the following was established. 1) The extrapolation does not introduce any noticeable speech distortion for $\mathcal{T}_0 \leq 50$ microsec., $f \leq 600 \stackrel{!}{\cdot} 800$ c/s and $f \approx 6000 \stackrel{!}{\cdot} 8000$ c/s. For $f \approx 6000 \stackrel{!}{\cdot} 6000$ c/s distortions are noticeable but not unbearable. 2) for $\mathcal{T}_0 \approx 50$ microsec. distortions distinctly increase but signal is still understandable to a variable extent. The signal ceases to be understandable at $f \approx 1200$ c/s for $f \approx 1000$.

Application of the signal ...

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1200 c/s for n = 2 and at $f_n = 500 - 800$ c/s for n = 3. With impulsive interference at the input for its effective suppression (30 - 40 db with respect to the signal) the required $T_0 = 400-500$ microsec. for 10 to 20 ratio of the interference to signal at the input. It is stated in conclusion that the method described can be applied to radiotelephony where the quality of reproduced signal can be rather poor. There are 6 figures and 3 Soviet-bloc references.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova (Scientific and Technical Society of Radio and Electrical Communications im. A.S. Popov) [Abstractor's note: Name of association taken from first page of journal/

SUBMITTED:

September 24, 1960

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(Legend to Fig. 1 see

next card)

GORBACHEV, A.A., kand.tekhn.nauk (g.Gor'kiy); RODIONOV, Ya.G., kand.tekhn.nauk (g.Gor'kiy)

Method for increasing the interference rejection of multichannel high-frequency telephone systems. Vest. sviazi 21 no.1:13-14,
Ja '61. (MIRA 15:5)

(Telephone)

	Concerning the use of an image signal extrapolation method for suppressing impulse interference. Elektrosviaz' 16 no.12:					
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No.						

GORBACHEV, A.A.

Increase in the interference rejection of AM radio signal reception using nonlinear feedback in the high-frequency section of the receiving devices, Radiotekhnika 18 no.2: 37-42 F 163. (MIRA 16:4)

1. Deystvitel'nyy chlen Mauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyssi imeni Popova. (Radio-Interference) (Radio-Receivers and reception)

ACCESSION NR: AT4019308

ADBUTTER WASHEDER & BOOK

8/0000/63/003/001/0155/0159

AUTHOR: Gorbachev, A. A.; Polukhin, Yu. M.; Ravich, A. M.; Yusim, L. M.

TITLE: Optical investigations of photosensitive glasses

SOURCE: Simpozium po stekloobraznomu sostoyaniyu. Leningrad, 1962. Stekloobraznoye sostoyaniye, vy*p. 1: Katalizirovannaya kristallizatsiya stekla (Vitreous state, no. 1: Catalyzing crystallization of glass). Trudy* simpoziuma, v. 3, no. 1. Moscow, Izd-vo AN SSSR, 1963, 155-159

TOPIC TAGS: glass, photosensitivity, photosensitive glass, glass optical property, lithium aluminosilicate; image formation, absorption spectrum, luminescence spectrum, crystallization center

ABSTRACT: The mechanism of image formation in photosensitive glasses of the lithium aluminosilicate system and the kinetics of the formation of crystallization centers were investigated. The following optical characteristics were studied: the absorption spectra of irradiated, nonirradiated, and thermally-treated glasses; the relationship between the absorption of glasses and temperature under continuous heating of the sample; the thermoluminescence, and the luminiscence spectra of irradiated and nonirradiated glasses depending on the temperature of thermal treatment. Absorption spectra for glass 2L depending on the thermal treatment and Card 1/2